

Appendix J

Environmental Concerns and Compliance

ENVIRONMENTAL AWARENESS AND COMPLIANCE

J-1. Unit preparation to conduct aviation operations, in any environment, can incorporate the necessary environmental awareness with minimal additional planning. Many aspects of environmental protection discussed below will appear to be common sense and will most likely be a part of the unit's operational activity. This appendix will be a guide by which to attain a balance between mission accomplishment and protecting environmentally sensitive areas.

TRAINING PREPARATION

J-2. Advanced preparation is key to successful completion of training and the same holds true for environmental awareness and protection. The commander should be aware of the publications governing environmental protection. All unit staffs (troop and above) should designate an environmental compliance officer and/or NCO to serve as unit POC. This person will be responsible for environmental education, SOP updates, preparation of environmental risk assessments, and incident reporting. ARs 200-1 and 200-2 explain the Army's environmental programs. Appendix A, in both regulations, references the additional documents that should be reviewed. TC 5-400 provides a comprehensive listing of all items of interest in the preparation for operating near and avoiding environmentally sensitive areas.

J-3. Figure J-1 is a general POC matrix to assist in the planning for environmental factors that will affect unit training:

J-4. Most topics can be reviewed by contacting the ED, NRB, and range control. In most cases, ED and NRB are located under the DPW. In cases where training is conducted overseas, you will refer to the host nation equivalent of the above listed points of contact. If there is no host nation equivalent, all training will be conducted under US policies and requirements. Units should coordinate with these organizations to provide a briefing prior to the start of mission training.

ARMY ENVIRONMENTAL COMPLIANCE ASSESSMENT SYSTEM

J-5. Units that handle HW and HM must designate, in writing, a HW coordinator. The unit must comply with ECAP protocol and will be periodically inspected. ECAP protocols should be attained from the ED and/or DPW or, if unable, then call the Army environmental hotline at 1-800-USA-3845 or DSN 584-1699.

<u>TOPIC</u>	<u>POC</u>
Air pollution	ED
Archeological and historic sites	ED and Natural Resources Branch
Clean and safe water	ED
HMs and waste	Directorate of Logistics, Defense Reutilization and Marketing Office, ED, and the fire department.
Noise pollution	ED, Range Control (DPTM)
Range clearances and restrictions	Range Control (DPTM)
Standing operating procedures	ED
Spill reporting	ED
Threatened/endangered species	NRB
Water pollution	ED
Wetland protection	NRB, Range Control
Wildlife management	NRB, Range Control

Figure J-1. Point of Contact Matrix

UNIT LEVEL ENVIRONMENTAL PROGRAMS (REFER TO TC 5-400)

- Step 1. Ensure all unit personnel have had or are scheduled to receive environmental awareness training.
- Step 2. Designate, in writing, an environmental compliance officer and/or HW coordinator and ensure they are properly trained and qualified.
- Step 3. Unit environmental compliance officer will interface with appropriate environmental personnel and ensure that unit complies with environmental laws and regulations.
- Step 4. Meet with battalion S3, S4, and installation personnel who deal with environmental issues.
- Step 5. Identify requirements concerning ECAP inspections; that may effect unit and identify problem areas and how to avoid and/or protect them.
- Step 6. Ensure SOP addresses environmental issues and/or procedures that apply to the unit and coordinate environmental

requirements with appropriate installation and/or chain of command personnel.

NOTE: Personnel to contact to support unit is the chain of command, DPW, staff judge advocate, and range control.

TYPES OF UNIT PROGRAMS (REFER TO TC 5-400).

- HM Programs.
- HW Programs.
- HAZCOM Programs.
- Pollution prevention and HAZMIN recycling programs.
- Spill prevention and response plan programs.

NOTE: TC 5-400 gives specific guidance on environmental protection matters and should be complied with. This appendix is intended to supplement, not replace, TC 5-400.

MISSION EXECUTION

J-6. Environmental concerns pertaining to a mission could be incorporated into the mission briefing using the acronym METT-T. Some of the factors affecting the briefing should be unit mission, geographical location, and time of the year.

MISSION

- Identify and assess known environmental risks during planning.
- Determine environmental impact on mission execution.
- Specify those areas to avoid and minimize the effect on units scheme to maneuver.
- Select alternate training methods or goals.
- Provide maps and/or sketches with detailed areas of environmental concern.
- Emphasize the importance that every soldier play an active role in the identification and timely reporting of new environmental risk elements.
- Rapidly and effectively respond to all POL and/or HW accidents.
- Select routes that allow for quick access in case the aircraft transporting HM and/or HW should have to land unexpectedly.

ENEMY

- Identify areas of probable environmental contamination that could effect friendly force movement.
- Evaluate intelligence reports of enemy equipment and/or capability and how it would be employed against the environment.
- Develop enemy target options to minimize environmental effects.

- Maneuver enemy action away from environmentally sensitive areas, when feasible.

TERRAIN AND WEATHER

- Provide recommended paths of movement to avoid environmentally sensitive areas.
- Emphasize navigation accuracy and identify well defined terrain features to assist.
- Obtain and analyze predominant and developing weather patterns to diminish possible environmental risks.

TROOPS AND EQUIPMENT

- Develop a briefing for all soldiers that highlights and defines the environmental concerns and/or points of interest.
- Provide a detailed and accurate SOP that identifies guidelines to avoid risk areas and not inhibit mission accomplishment.
- Anticipate areas of probable risk and brief troops on how to prevent damage.
- Employ practice scenarios that tests soldier response and promotes the decision making process to changing environmental risks.
- Require accurate and timely reports that pertain to any environmentally concerned issues, friendly or enemy.

TIME

- Maximize planning time and minimize complexity of mission brief.
- Practice and develop various mission profiles that emphasize adjusting for changing environmental factors, while maintaining the desired momentum.

RISK ASSESSMENT

J-7. The environmental risk assessment considerations contained in this appendix address the potential impact of unit activities on the environment. Units add other considerations to address local conditions or different unit activities. Using a scale of “0” (no probability of environmental damage) to “5” (extremely high probability of environmental damage), unit leaders rate the specific activities the unit will perform during an operation. Unit leaders perform this evaluation for each of seven environmental areas. Using sound judgment, unit leaders consider the conditions under which the unit operates. Unit leaders then apply this value to the risk assessment matrix (Figure J-2). The value is not an absolute. Different leaders will assign different ratings for the same activity. It is simply a judgment call based on the leader’s assessment. This appendix is formatted to allow photocopying or other reproduction, as required.

Environmental Area:				Rating		
Unit Activity	Risk Impact					
	(Circle one number in each row.)					
Movement of heavy vehicles and systems	5	4	3	2	1	0
Movement of personnel and light vehicles/systems	5	4	3	2	1	0
Activities of assembly-area	5	4	3	2	1	0
Field maintenance of equipment	5	4	3	2	1	0
Garrison maintenance of equipment	5	4	3	2	1	0

Figure J-2. Risk Assessment Matrix

ENVIRONMENTAL FACTORS

J-8. Knowledge of environmental factors is key to planning and decision making. With this knowledge, leaders quantify risks, detect problem areas, reduce risk of injury or death, reduce property damage, and ensure compliance with environmental regulations. Unit leaders should complete environmental risk assessments before conducting any training, operations, or logistics activities. The environmental risk assessment matrix (Figure J-3) provides a deliberate approach to assessing the risk of unit activities on specific environmental areas. The matrix has four components—environmental area, unit activities, risk impact, risk rating.

Environmental Area: Air Pollution				Rating 15		
Unit Activity	Risk Impact					
	(Circle one number in each row.)					
Movement of heavy vehicles and systems	5	4	3	2	1	0
Movement of personnel and light vehicles/systems	5	4	3	2	1	0
Activities of assembly-area	5	4	3	2	1	0
Field maintenance of equipment	5	4	3	2	1	0
Garrison maintenance of equipment	5	4	3	2	1	0

Figure J-3. Completed Risk Assessment Matrix

ENVIRONMENTAL AREAS

J-9. The risk assessment matrix assesses risk in seven environmental areas. Unit leaders and staffs should develop one matrix for each. These areas are air pollution, archeological, cultural and historical resources, HMs and HW, noise pollution, threatened and endangered species, water pollution, and soil, vegetation, and wetland protection.

UNIT ACTIVITIES

J-10. The risk assessment matrix used in this manual considers five unit activities. These activities are generic, and units may modify them to meet their mission requirements and local conditions. These unit missions are movement of heavy vehicles and systems, movement of personnel and light vehicles and systems, activities of the AA, field maintenance of equipment, and garrison maintenance of equipment.

NOTE: Examples of other activities that units might add are direct and indirect weapons firing, unexploded ordnance operations, aviation support and operations, medical support and operations, mines and demolition, smoke operations, waterborne or amphibious operations, night operations, and NBC operations.

RISK IMPACT VALUE

J-11. The risk impact value estimates the probability the unit operation will have a negative impact on a particular environmental area. It is a judgment for which the numeric value, 0-5, most closely reflects the conditions under which the unit is operating. The value is not an absolute, different unit leaders might assign different values for the same mission. The risk impact value is simply a judgment call based on the unit leader's assessment of the potential for environmental damage. The criteria shown in

figures J-4 through J-10 of this appendix help unit leaders evaluate the probability of occurrence. In filling out the matrix, the unit leader or staff officer circles the value selected for each unit operation (Figure J-3).

AIR POLLUTION—PROBABILITY OF NEGATIVE IMPACT

Value	Contributing Factors
5	<p>Current or forecasted weather conditions will contribute to brush fires (dry and windy). Operating and/or work area is susceptible to brush fires. Operating and/or work area lacks vegetation and/or pavement and is susceptible to dust formulation. Vehicles and equipment are not reliable or well maintained. Soldiers are not proficient and/or experienced in the unit activity being conducted. Command and control and/or supervision is marginal. Sustained high-tempo operations and/or activities (36 hours plus) are planned. Extensive use of external combustion equipment (for example, paving or roofing equipment) or explosives, incendiary devices, flares or simulators is planned.</p>
4	<p>Current or forecasted weather conditions could contribute to brush fires. Operating and/or work area is susceptible to brush fires. Operating and/or work area is susceptible to moderate dust formulation. Soldiers lack environmental awareness. Some high-tempo operations and/or activities are planned. Some use of external combustion equipment (for example, paving or roofing equipment), explosives, incendiary devices, flares, or simulators is planned.</p>
3	<p>Weather is favorable to training; winds are within safe operating limits. Operating and/or work area is safe from brush fires. Soldiers are briefed on hazards of brush fires and fire restrictions. Command and control and/or supervision are adequate.</p>
2	<p>Operating and/or work area is safe from brush fires. Operating and/or work area is not susceptible to dust formulation. Standby fire-fighting equipment is available. Soldiers are briefed on hazards of brush fires and fire restrictions. Soldiers are environmentally conscientious. Command and control and/or supervision are good.</p>
1	<p>Operating and/or work areas are not susceptible to brush fires.</p>

	Fires are limited, controlled, and allowed only in authorized areas. CS (riot-control chemical agent) and smoke are strictly controlled. Vehicles and equipment are well maintained and in good operating order. Soldiers are environmentally conscientious. Soldiers are thoroughly familiar with range fire restrictions. Command and control and/or supervision is excellent.
0	No risk and/or not applicable.

Figure J-4. Air Pollution Risk Impact Value

ARCHEOLOGICAL, CULTURAL, AND HISTORIC RESOURCES—PROBABILITY OF NEGATIVE IMPACT

Value	Contributing Factors
5	Low-visibility, night, or sustained high-tempo operations and/or activities (36 hours plus) are planned. Operational and/or work area has many archeological, cultural, or historic resources. Archeological, Cultural and Historic resources are neither identified nor marked off limits. Command and control and/or supervision is marginal. Soldiers are not familiar with the operational and/or work area.
4	Operational and/or work area has some archeological, cultural, and historic resources. Archeological, cultural, and historic sites are marked off limits. Low-visibility or night operations and/or activities are planned. Command and control and/or supervision is adequate. Soldiers are not familiar with the operational and/or work area.
3	Archeological, cultural, and historic sites are identified and marked off limits. Soldiers have been briefed on off-limit sites in operational and/or work area. No low-visibility or night operations and/or activities are planned. C ² and supervision are adequate.
2	Archeological, cultural, and historic sites are identified and marked off limits. No low-visibility or night operations and/or activities are planned. Command and control and/or supervision is good. Soldiers are familiar with the operational and/or work area.
1	Archeological, cultural, and historic sites are identified and marked off limits. Soldiers avoid sites during training, operations and/or activities, and logistical activities. Soldiers are proactive in recognizing, safeguarding, and reporting signs or evidence of possible archeological artifacts or sites. Command and control and/or supervision is effective. Soldiers are thoroughly familiar with the operational and/or work area.

	Current or forecasted weather conditions are not an adverse factor.
0	No risk and/or not applicable.

Figure J-5. Archeological, Cultural, and Historic Resources Risk Impact Value

HM AND HW—PROBABILITY OF NEGATIVE IMPACT

Value	Contributing Factors
5	<p>Low-visibility, night, or sustained high-tempo operations and/or activities (36 hours plus) are planned.</p> <p>Operations and/or activities are planned close to surface water sources.</p> <p>Current or forecasted weather conditions are harsh.</p> <p>Soldiers' experience with responding to HM or HW spills is limited or untested.</p> <p>Command and control and/or supervision is marginal.</p> <p>Soldiers lack environmental awareness.</p>
4	<p>Some high-tempo operations and/or activities are planned.</p> <p>Operations and/or activities close to water sources are planned.</p> <p>Current or forecasted weather conditions are marginal.</p> <p>Some individuals are HM and/or HW qualified.</p>
3	<p>Soldiers are environmentally conscientious but not trained.</p> <p>Key HM and/or HW personnel are available during operations and maintenance activities.</p> <p>Adequate spill cleanup materials are available.</p> <p>Command and control and/or supervision is adequate.</p> <p>Current or forecasted weather conditions are not a factor.</p>
2	<p>Routine operations and/or activities are planned (Soldiers have adequate rest).</p> <p>Key HM and/or HW individuals will oversee high-risk HM and/or HW operations and maintenance activities.</p> <p>Soldiers are environmentally sensitive and HM and/or HW trained.</p> <p>Current or forecasted weather conditions are not a factor.</p> <p>Command and control and/or supervision is excellent.</p>
1	<p>Soldiers dealing with HM and/or HW are well trained and experienced.</p> <p>Spill response team is well trained and has successfully conducted a HW and/or HM spill drill within preceding six months.</p> <p>Unit HM and/or HW SOP is current (includes accurate HM and/or HW inventory and location) and fire department is provided with this inventory and location of HM and/or HW.</p> <p>Command and control and/or supervision is excellent.</p> <p>HM and/or HW is transported according to local and/or installation procedures.</p> <p>Tempo of operations and/or activities, training, and maintenance is routine.</p> <p>Soldiers support the recycling program.</p> <p>Work areas are well maintained and unit maintains good housekeeping practices.</p>
0	No risk and/or not applicable.

Figure J-6. Hazardous Material and Hazardous Waste Risk Impact Value

NOISE POLLUTION—PROBABILITY OF NEGATIVE IMPACT

Value	Contributing Factors
5	<p>Sustained high-tempo operations and/or activities (36 hours plus) are planned, with much noise-generating equipment and activities (artillery, tracked vehicles, weapons firing, construction equipment, aircraft, power generation equipment). Activities are located close to civilian populace. Command and control and/or supervision is marginal.</p> <p>Soldiers' proficiency in the activities being conducted is marginal. Soldiers lack environmental awareness. Extensive night maneuvers are planned.</p>
4	<p>High-tempo operations and/or activities are planned with some noise-generating activities (artillery, tracked vehicles, weapons firing, construction equipment, aircraft, power generation equipment).</p> <p>A large number of engine starts and runups are required. Command and control and/or supervision is adequate. Activities are located near civilian populace. Soldiers lack environmental awareness. Limited night maneuvers are planned.</p>
3	<p>Level of noise-generating equipment is routine (wheeled vehicles, small generators, lawnmowers, cadences and/or jodies). Civilian populace will be nominally affected. Command and control and/or supervision is adequate.</p> <p>Night maneuvers may be conducted.</p>
2	<p>Level of noise generated is nominal. Command and control and/or supervision is good. Soldiers are environmentally conscientious. Night maneuvers are not likely.</p>
1	<p>Soldiers are aware of and comply with noise-restriction hours. Minimum operations and/or activities, training, or maintenance activities are planned. Command and control and/or supervision is highly effective. Activities are located away from civilian populace. No night maneuvers are planned.</p>
0	No risk and/or not applicable.

Figure J-7. Noise Pollution Risk Impact Value

THREATENED AND ENDANGERED SPECIES—PROBABILITY OF NEGATIVE IMPACT

Value	Contributing Factors
5	Threatened and endangered species' habitats are not identified. Threatened and endangered species' habitats are not marked off as a restricted area. Command and control and/or supervision is marginal. Sustained low-visibility or night operations and/or activities are planned. Sustained high-tempo operations and/or activities (36 hours plus) are planned. Soldiers are not familiar with the operational and/or work area.
4	Threatened and endangered species' habitats are marked off.
	Low-visibility or night operations and/or activities are planned, and the troops are inexperienced. Command and control and/or supervision is adequate. Soldiers are not familiar with the operational and/or work area.
3	Threatened and endangered species' habitats are marked off. Soldiers are briefed on threatened and endangered species. Low-visibility or night operations and/or activities are planned, but troops are experienced. Command and control and/or supervision is adequate.
2	Threatened and endangered species' habitats are identified. Threatened and endangered species' habitats are marked off. Low-visibility or night operations and/or activities are not planned. Command and control and/or supervision is good. Soldiers are familiar with the operational and/or work area.
1	Threatened and endangered species' habitats are identified. Soldiers know and recognize threatened and endangered species. Threatened and endangered species' habitats are marked off as restricted and/or off-limits areas. Soldiers avoid threatened and endangered species' habitats during training, operations and/or activities, and logistical activities. Command and control and/or supervision is effective. Soldiers are thoroughly familiar with the operational and/or work area.
0	No risk and/or not applicable.

Figure J-8. Threatened and Endangered Species Risk Impact Value

WATER POLLUTION—PROBABILITY OF NEGATIVE IMPACT

Value	Contributing Factors
5	<p>Maneuver will cause much operational and/or work area damage.</p> <p>Potential spills most likely will affect surface waters (wetlands, groundwater, streams, ditches, sewers, or drains).</p> <p>Night or low-visibility operations and/or activities are planned.</p> <p>Soldiers' environmental proficiency is low.</p> <p>Command and control and/or supervision is marginal.</p> <p>Sustained high-tempo operations and/or activities (36 hours plus) are planned.</p> <p>Spill response is marginal or untested.</p> <p>Spill response material is not available.</p>
4	<p>Maneuver will cause some terrain damage.</p> <p>Potential spill is 25 gallons; will not affect surface waters, wetlands, groundwater, streams, ditches, sewers, or drains.</p> <p>High-tempo operations and/or activities (up to 36 hours) are planned.</p> <p>Soldiers' environmental proficiency is somewhat low.</p> <p>Command and control and/or supervision is marginal.</p>
3	<p>Potential spill is 25 gallons, with no potential contamination of any water source.</p> <p>Routine operations and/or activities (12-16 hours a day) are planned.</p> <p>Soldiers are environmentally sensitive.</p> <p>Command and control and/or supervision is adequate.</p> <p>Weather will not adversely affect operations and/or activities.</p>
2	<p>Potential spill is 1 gallon; with no potential contamination of any water source.</p> <p>Routine operations and/or activities (12-16 hours a day) are planned.</p> <p>Soldiers are environmentally sensitive.</p> <p>Command and control and/or supervision is good.</p> <p>Soldiers are trained in spill-response duties.</p> <p>Spill control material is readily available.</p>
1	<p>No potential for spill.</p> <p>Soldiers are very environmentally aware.</p> <p>Command and control and/or supervision is high-tested.</p> <p>Soldiers maintain good housekeeping practices.</p> <p>Equipment is well maintained.</p> <p>Collection of maintenance wastes is managed properly.</p>
0	No risk and/or not applicable.

Figure J-9. Water Pollution Risk Impact Value

WETLAND PROTECTION—PROBABILITY OF NEGATIVE IMPACT

Value	Contributing Factors
5	Sustained high-tempo operations and/or activities (36 hours plus) are planned. Command and control and/or supervision is marginal. Current or forecasted weather conditions will cause operations and/or activities to adversely affect wetlands. Soldiers lack environmental awareness. Soldiers' proficiency in the activities being conducted is marginal. Field service and/or maintenance may have to be done near wetlands. Spill response is marginal or untested. Spill response materials are not available.
4	Low-visibility or night operations and/or activities are planned. Command and control and/or supervision is adequate. Soldiers are not familiar with the operational and/or work area. Soldiers lack environmental awareness. Field service and/or maintenance may have to be done near wetlands.
3	Soldiers have been briefed on susceptibility of wetlands to damage. No low-visibility or night operations and/or activities are planned. Command and control and/or supervision is adequate.
2	Soldiers are environmentally conscientious. No low-visibility or night operations and/or activities are planned. Command and control and/or supervision is good. Soldiers are familiar with the operational and/or work area.
1	Maintenance is conducted only in approved areas. Wetland areas and boundaries are identified. No refueling will be conducted in wetland areas. Streams and/or ditches will be crossed at designated vehicle crossings. Command and control and/or supervision is excellent. Soldiers are environmentally conscientious. Soldiers are familiar with operational and/or work area. Activity in the area is specifically permitted by the installation SOP or other documents. Collection of maintenance wastes is managed properly.
0	No risk and/or not applicable.

Figure J-10. Wetland Protection Risk Impact Value**RISK RATING**

J-12. Unit leaders rate the risk for each environmental area (each matrix) by adding the circled risk impact values (Figure J-11). Unit leaders develop a risk assessment of the entire activity or operation adding the risk ratings for the individual matrixes on one form. The overall environmental risk falls into one of four categories—low, medium, high, or extremely high (Figure J-12). Activities with an extremely high probability of environmental damage require MACOM approval. These activities may also require NEPA analysis.

	Movement of heavy vehicles/ systems	Movement of personnel and light vehicles/ systems	Assembly area	Field maintenance of equipment	Garrison maintenance of equipment	Risk rating
Air pollution	3	1	5	4	2	15
Archeological and historical sites	3	3	0	1	0	7
Hazardous materials and hazardous waste	2	1	1	2	0	6
Noise pollution	1	0	1	0	0	2
Threatened and endangered species	1	1	0	0	0	2
Water pollution	5	2	3	2	0	12
Wetland protection	5	2	1	2	0	10
Overall rating	20	10	11	11	2	54

Figure J-11. Overall Risk Assessment Matrix

<u>Category</u>	<u>Range</u>	<u>Environmental Damage</u>	<u>Decision Maker</u>
Low	0 - 58	Little or none	Unit Commander
Medium	59 - 117	Minor	Next higher command
High	118 - 149	Significant	Installation and/or division
Extremely High	150-175	Severe	MACOM

Figure J-12. Overall Environmental Risk

RISK REDUCTION

J-13. The unit leader addresses each environmental area to reduce risks associated with unit activities. While he considers all risk values above "0," obviously he spends more time on risk values of "5" rather than "0." If the overall risk is low or medium, unit leaders still review any areas rated high

or extremely high. The unit leader should use his judgment in altering the operation to reduce the risk in this specific area. Many environmental risk reduction measures are simply extensions of good management and leadership practices. Unit leaders can effectively manage environmental risks using the following six steps:

- Step 1. Identify hazards to the environment during mission analysis. Consider all activities that may pollute air, soil, and water. Also consider activities that may degrade natural or cultural resources.
- Step 2. Assess the probability of environmental damage or violations with environmental risk assessment matrixes.
- Step 3. Make decisions and develop measures to reduce high risks. Risk reduction measures can include rehearsals, changing locations or times of operations, and increasing supervision.
- Step 4. Brief chain of command, unit staff, and appropriate decision makers on proposed plans and residual risk.
- Step 5. Integrate environmental measures into plans, orders, SOPs, and rehearsals. Inform subordinates, down to individual soldier- and Marine-level, of risk reduction measures.
- Step 6. Supervise and enforce environmental standards. Hold those in charge accountable for environmental risk reduction.

RESIDUAL RISK

J-14. Once all practicable risk reduction measures are in place, some risk will remain. This residual risk requires leaders' attention. Unit leaders inform the chain of command and appropriate decision makers of residual risk and its implications for the operation. Unit leaders also inform their subordinates and focus C² efforts onto those portions of the operation.

SUMMARY

J-15. Unit leaders use environmental risk assessment to estimate the potential impact of unit activities on the environment. This process applies to routine activities, training, mobilization, or deployment. The environmental risk assessment will allow leaders and their staffs to identify potential environmental problems before they occur. The process also allows unit leaders to identify and manage residual risk.